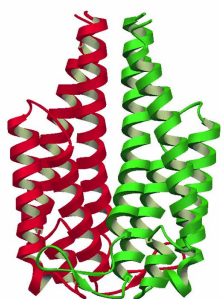


The Laboratory is operated by Brookhaven Science Associates, founded by Stony Brook University and Battelle. Six Nobel Prize-winning discoveries have been made at Brookhaven, and, each year, some 4,000 visiting researchers from universities, industry, and other labs worldwide take advantage of Brookhaven's unique facilities.



A 3-D model of a Lyme disease protein, deciphered at Brookhaven.

Brookhaven Discoveries

For more than 55 years, Brookhaven National Laboratory has been one of the nation's — and the world's — leading research institutions. Much of the Laboratory's effort is directed at the study of the basic nature of matter, including

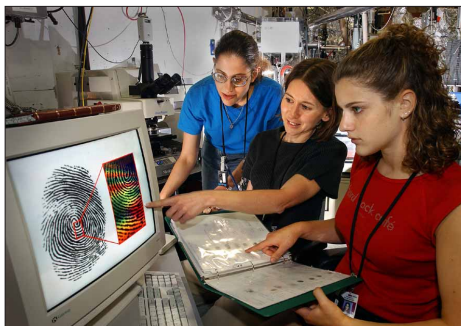
subatomic particles and the structure of the atom. Some of the Lab's research, however, has also produced extraordinarily useful technology. Here are a few examples of Brookhaven Lab's practical innovations:

Medical Marvels

- Technetium-99m, now used to diagnose heart disease and other ailments in more than 11 million people each year
- Synthetic insulin
- Promising addiction treatment, now in clinical trials
- Thallium-201, now used in hundreds of thousands of heart stress tests each year
- Studies of the Lyme disease protein used in a new, effective vaccine
- Use of L-dopa for the treatment of Parkinson's disease
- Important studies of the brain, including those uncovering the roots of psychiatric disorders, brain metabolism and drug addiction (e.g., first images of cocaine's effects on the brain, discovery of enzyme deficit in smokers' brains)

Technological Triumphs

- Measured wear in engine parts, which led to the development of multi-grade motor oils such as 10W-30
- Invented better, cleaner, more efficient oil burners and devices to aid clean and efficient oil burning
- Studied environmental technologies and



Brookhaven's Lisa Miller (center) works with students who represent the next generation of U.S. scientists

phenomena, including polymers used to clean oil spills

- Harnessed natural bacteria to clean up environmental pollution and purify crude oil
- Developed new techniques for encapsulating hazardous waste for storage and

disposal with materials such as glass, plastic and concrete

- Designed advanced computer chips
- Developed asbestos-digesting foam used to render asbestos harmless
- Built better batteries using advanced electrolyte materials
- Magnetically levitated trains
- Created advanced coatings for corrosion prevention
- Developed polymer composite materials for construction and road repair
- Designed polyplanar (flat panel) video display screen

Basic-Research Breakthroughs

- Discovered a rare arrangement of electric charge in a high-temperature superconductor, which is a valuable clue to how those materials function
- Were the first to cause individual carbon nanotubes to emit light
- Twice observed a once-in-a-trillion decay of a kaon, a subatomic particle
- Developed a recyclable catalyst that can be recovered and reused with no waste, eliminating a need for solvents
- Conducted Nobel Prize-winning research on solar neutrinos, and how they change form on the way to Earth
- Created molecule-thick organic films on liquid mercury, helping build a foundation for the development of molecular electronics